**Amendments to the Claims**:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1-16. (Cancelled)

17. (Previously Presented) A projection exposure apparatus comprising:

an illumination optical system disposed in an optical path between a light source and a reticle so as to illuminate the reticle on which a predetermined pattern is formed;

a projection optical system disposed in an optical path between the reticle and a substrate so as to project an image of the reticle illuminated by the illumination optical system onto the substrate; and

an optical adjusting unit including at least four surfaces which are disposed in the optical path between the reticle and the substrate and which have rotationally asymmetric power with respect to an optical axis of the projection optical system so as to correct a remaining optical characteristic that is rotationally asymmetric with respect to the optical axis of the projection optical system,

wherein at least one of the at least four surfaces is adjustable.

18. (Previously Presented) A projection exposure apparatus according to claim 17, wherein said at least one adjustable surface is rotatable about the optical axis of said projection optical system.

19. (Previously Presented) A projection exposure apparatus according to claim 17, wherein said at least one adjustable surface is movable along the optical axis of said projection optical system.

20. (Previously Presented) A projection exposure apparatus according to claim 17, wherein said at least four surfaces comprise a first surface having different powers in orthogonal directions, a second surface having different powers in orthogonal directions, a

third surface having different powers in orthogonal directions, and a fourth surface having different powers in orthogonal directions.

21. (Previously Presented) A projection exposure apparatus according to claim 20, wherein said first surface is arranged near said second surface; and

wherein said third surface is arranged near said fourth surface.

22. (Previously Presented) A projection exposure apparatus according to claim 21, wherein said optical adjusting unit further comprises an adjusting system to adjust at least one of said first surface and said second surface and to adjust at least one of said third surface and said fourth surface.

23. (Previously Presented) A projection exposure apparatus according to claim 17, wherein each of said at least four surfaces is disposed either between the reticle and said projection optical system, inside said projection optical system, or between said projection optical system and the substrate.

24. (Previously Presented) A projection exposure apparatus according to claim 17, wherein said projection optical system comprises an optical element including an aspherical surface disposed in the optical path between the reticle and the substrate so as to correct an optical characteristic remaining in said projection optical system.

25. (Previously Presented) A projection exposure apparatus according to claim 24, wherein said aspherical surface is processed locally so as to correct a random optical characteristic remaining in said projection optical system.

26. (Previously Presented) A projection exposure apparatus according to claim 24, wherein said aspherical surface is formed on a lens surface of said projection optical system.

27. (Previously Presented) A projection exposure apparatus comprising:

an illumination optical system disposed in an optical path between a light source and a reticle so as to illuminate the reticle on which a predetermined pattern is formed; and

a projection optical system disposed in an optical path between the reticle and a substrate to project an image of the reticle illuminated by the illumination optical system onto the substrate;

the projection optical system comprising an optical adjusting unit including at least four surfaces which are disposed in an optical path between the reticle and the substrate and which have rotationally asymmetric power with respect to an optical axis of the projection optical system so as to correct a remaining optical characteristic that is rotationally asymmetric with respect to the optical axis of the projection optical system,

wherein at least one of the at least four surfaces is adjustable.

28. (Previously Presented) A projection exposure apparatus according to claim 27, wherein said at least one adjustable surface is rotatable about the optical axis of said projection optical system.

29. (Previously Presented) A projection exposure apparatus according to claim 27, wherein said at least one adjustable surface is movable along the optical axis of said projection optical system.

30. (Previously Presented) A projection exposure apparatus according to claim 27, wherein said at least four surfaces comprise a first surface having different powers in orthogonal directions, a second surface having different powers in orthogonal directions, a third surface having different powers in orthogonal directions, and a fourth surface having different powers in orthogonal directions.

31. (Previously Presented) A projection exposure apparatus according to claim 30, wherein said first surface is arranged near said second surface; and said third surface is arranged near said fourth surface.

32. (Previously Presented) A projection exposure apparatus according to claim 31, wherein said optical adjusting unit further comprises an adjusting system to adjust at least one of said first surface and said second surface and to adjust at least one of said third surface and said fourth surface.

33. (Previously Presented) A projection exposure apparatus according to claim 27, wherein said projection optical system comprises an optical element including an aspherical surface disposed in the optical path between the reticle and the substrate so as to correct an optical characteristic remaining in said projection optical system.

34. (Previously Presented) A projection exposure apparatus according to claim 33, wherein said aspherical surface is processed locally so as to correct a random optical characteristic remaining in said projection optical system.

35. (Previously Presented) A projection exposure apparatus according to claim 33, wherein said aspherical surface is formed on a lens surface of said projection optical system.

36. (Previously Presented) A projection exposure apparatus comprising:

an illumination optical system disposed in an optical path between a light source and a reticle so as to illuminate the reticle on which a predetermined pattern is formed;

a projection optical system disposed in an optical path between the reticle and a substrate so as to project an image of the reticle illuminated by said illumination optical system onto the substrate;

an optical adjusting unit including at least one optical surface disposed in the optical path between the reticle and the substrate so as to correct a first optical characteristic remaining in said projection optical system; and

a correction optical element including an aspherical surface fixed in the optical path between the reticle and the substrate so as to correct a second optical characteristic remaining in said projection optical system.

37. (Previously Presented) A projection exposure apparatus according to claim 36, wherein said at least one optical surface has rotationally asymmetric power with respect to an optical axis of said projection optical system so as to correct the first optical characteristic which is rotationally asymmetric with respect to the optical axis of said projection optical system.

38. (Previously Presented) A projection exposure apparatus according to claim 37, wherein said at least one optical surface is rotatable about the optical axis of said projection optical system.

39. (Previously Presented) A projection exposure apparatus according to claim 37, wherein said at least one optical surface is movable along the optical axis of said projection optical system.

40. (Previously Presented) A projection exposure apparatus according to claim 37, wherein said at least one optical surface has different powers in orthogonal directions.

41. (Previously Presented) A projection exposure apparatus according to claim 37, wherein said at least one optical surface is disposed either between the reticle and said projection optical system, inside said projection optical system, or between said projection optical system and the substrate.

42. (Previously Presented) A projection exposure apparatus according to claim 36, wherein said second optical characteristic is a random optical characteristic remaining in said projection optical system.

43. (Previously Presented) A projection exposure apparatus according to claim 42, wherein said aspherical surface is processed locally.

44. (Previously Presented) A projection exposure apparatus according to claim 36, wherein said aspherical surface is formed on a lens surface of said projection optical system.

45. (Previously Presented) A projection exposure apparatus comprising:

an illumination optical system disposed in an optical path between a light source and a reticle so as to illuminate the reticle on which a predetermined pattern is formed; and

a projection optical system to project an image of the reticle illuminated by said illumination optical system onto a substrate;

said projection optical system comprising:

an optical adjusting unit including at least one optical surface disposed in an optical path between the reticle and the substrate so as to correct a first optical characteristic remaining in said projection optical system; and

a correction optical element including an aspherical surface fixed in the optical path between the reticle and the substrate so as to correct a second optical characteristic remaining in said projection optical system.

46. (Previously Presented) A projection exposure apparatus according to claim 45, wherein said at least one optical surface has rotationally asymmetric power with respect to an optical axis of said projection optical system so as to correct the first optical characteristic

which is rotationally asymmetric with respect to the optical axis of said projection optical system.

47. (Previously Presented) A projection exposure apparatus according to claim 46, wherein said at least one optical surface is rotatable about the optical axis of said projection optical system.

48. (Previously Presented) A projection exposure apparatus according to claim 46, wherein said at least one optical surface is movable along the optical axis of said projection optical system.

49. (Previously Presented) A projection exposure apparatus according to claim 47, wherein said at least one optical surface has different powers in orthogonal directions.

50. (Previously Presented) A projection exposure apparatus according to claim 45, wherein the second optical characteristic is a random optical characteristic remaining in said projection optical system.

51. (Previously Presented) A projection exposure apparatus according to claim 50, wherein said aspherical surface is processed locally.

52. (Previously Presented) A projection exposure apparatus according to claim 45, wherein said aspherical surface is formed on a lens surface of said projection optical system.

53. (Previously Presented) An exposure method utilizing the projection exposure apparatus according to claim 17, said method comprising the steps of:

illuminating a reticle having a predetermined pattern by using said illumination optical system in the projection exposure apparatus; and

projecting an image of the reticle onto a substrate by using said projection optical system in the projection exposure apparatus.

54. (Previously Presented) An exposure method utilizing the projection exposure apparatus according to claim 27, said method comprising the steps of:

illuminating a reticle having a predetermined pattern by using said illumination optical system in the projection exposure apparatus; and

projecting an image of the reticle onto a substrate by using said projection optical system in the projection exposure apparatus.

55. (Previously Presented) An exposure method utilizing the projection exposure apparatus according to claim 36, said method comprising the steps of:

illuminating a reticle having a predetermined pattern by using said illumination optical system in the projection exposure apparatus; and

projecting an image of the reticle onto a substrate by using said projection optical system in the projection exposure apparatus.

56. (Previously Presented) An exposure method utilizing the projection exposure apparatus according to claim 45, said method comprising the steps of:

illuminating a reticle having a predetermined pattern by using said illumination optical system in the projection exposure apparatus; and

projecting an image of the reticle onto a substrate by using said projection optical system in the projection exposure apparatus.

57. (Previously Presented) A method of manufacturing a projection optical system for forming an image of a pattern on a reticle onto a substrate comprising:

rotating at least one optical element within said projection optical system so as to correct a first optical characteristic remaining in said projection optical system; and

forming an aspherical surface with respect to an optical element within said projection optical system so as to correct a second optical characteristic remaining in said projection optical system.

58. (Previously Presented) A method according to claim 57, wherein said second optical characteristic is a random optical characteristic remaining in said projection optical system.

59. (Previously Presented) A method according to claim 58, wherein said forming step includes the step of locally processing said optical element within said projection optical system.

60. (Previously Presented) A method according to claim 57, wherein said optical element with respect to which said aspherical surface is formed includes a lens.

61. (Previously Presented) A method according to claim 57, wherein said optical element with respect to which said aspherical surface is formed includes an optical plate.

62. (Previously Presented) A method of manufacturing a projection optical system for forming an image of a pattern on a reticle onto a substrate comprising:

rotating at least one optical element within said projection optical system so as to correct a first optical characteristic remaining in said projection optical system; and

disposing a correction element in an optical path between an object surface to which the reticle is to be disposed and an image surface to which the substrate is to be disposed, said correction element including an aspherical surface that corrects a second optical characteristic remaining in said projection optical system.

63. (Previously Presented) A method according to claim 62, wherein said second optical characteristic is a random optical characteristic remaining in said projection optical system.

64. (Previously Presented) A method according to claim 63, wherein said aspherical surface is formed by locally processing an optical element within said projection optical system.

65. (Previously Presented) A method according to claim 62, wherein said correction element with respect to which said aspherical surface is formed includes a lens.

66. (Previously Presented) A method according to claim 62, wherein said correction element with respect to which said aspherical surface is formed includes an optical plate.

67. (Previously Presented) A method of manufacturing an exposure apparatus comprising:

providing a projection optical system that forms an image of a pattern on a reticle onto a substrate:

rotating at least one optical element within said projection optical system so as to correct a first optical characteristic remaining in said projection optical system; and

forming an aspherical surface with respect to an optical element within said projection optical system so as to correct a second optical characteristic remaining in said projection optical system.

68. (Previously Presented) A method of manufacturing an exposure apparatus comprising:

providing a projection optical system that forms an image of a pattern on a reticle onto a substrate:

rotating at least one optical element within said projection optical system so as to correct a first optical characteristic remaining in said projection optical system; and

disposing a correction element in an optical path between an object surface to which the reticle is to be disposed and an image surface to which the substrate is to be disposed, said correction element including an aspherical surface that corrects a second optical characteristic remaining in said projection optical system.

69. (Previously Presented) A method of projecting an image of a reticle having a pattern onto a substrate by using a projection system, said method comprising the steps of:

providing a first magnification adjustment to light incident on said projection system;

passing light provided with the first magnification adjustment through said projection system; and

providing a second magnification adjustment to light having passed through said projection system.

70. (Previously Presented) A method according to claim 69, wherein said step for the first magnification adjustment comprises the step of adjusting at least one optical element of a first set of optical elements arranged between the reticle and said projection system; and wherein said step for the second magnification adjustment comprises the step of adjusting at least one optical element of a second set of optical elements arranged between said projection system and the substrate.

71. (Previously Presented) A method according to claim 69, wherein at least one of the first magnification adjustment and the second magnification adjustment is performed in accordance with an expansion or contraction of the substrate.

72. (Previously Presented) A projection system for projecting an image of a reticle having a pattern onto a substrate, comprising:

a first magnification adjustment system disposed in an optical path between the reticle and said projection system; and

a second magnification adjustment system disposed in an optical path between said projection system and the substrate.

73. (Previously Presented) A projection system according to claim 72, wherein said first magnification adjustment system comprises a first set of optical elements including

at least one adjustable element; and wherein said second magnification adjustment system comprises a second set of optical elements including at least one adjustable element.

74. (Previously Presented) A projection system according to claim 72, wherein at least one of the first magnification adjustment system and the second magnification adjustment system adjusts at least one of the first magnification adjustment and the second magnification adjustment in accordance with an expansion or contraction of the substrate.

75. (Previously Presented) A projection system according to claim 72, wherein said projection system comprises an aspherical surface fixed in the optical path between the reticle and the substrate.

76. (Previously Presented) A projection system according to claim 72, wherein said aspherical surface corrects a remaining random optical characteristic of said projection optical system.

77. (Previously Presented) An exposure method utilizing the projection system according to claim 72, comprising the steps of:

illuminating a reticle with light; and

projecting an image of a pattern formed on the reticle onto a substrate by using said projection system.

78. (Previously Presented) An exposure method utilizing the projection system according to claim 75, comprising the steps of:

illuminating a reticle with light; and

projecting an image of a pattern formed on the reticle onto a substrate by using said projection system.

79. (Previously Presented) An exposure method utilizing the projection system according to claim 76, comprising the steps of:

illuminating a reticle with light; and

projecting an image of a pattern formed on the reticle onto a substrate by using said projection system.

80. (Previously Presented) A method of manufacturing a projection optical system for forming an image of a pattern on a reticle onto a substrate comprising:

correcting a non-random optical characteristic remaining in said projection optical system by using at least one optical element within said projection optical system; and

correcting a random optical characteristic remaining in said projection optical system by using an aspherical surface having a random optical power.

81. (Previously Presented) A method according to claim 80, wherein said step of correcting the non-random optical characteristic comprises the step of adjusting said at least one optical element, which includes a surface having different powers in orthogonal directions.

82. (Previously Presented) A method according to claim 80, wherein said aspherical surface is processed locally.

83. (Previously Presented) A method of manufacturing an exposure apparatus comprising:

providing a projection optical system that forms an image of a pattern on a reticle onto a substrate;

correcting a non-random optical characteristic remaining in said projection optical system by using at least one optical element within said projection optical system; and

correcting a random optical characteristic remaining in said projection optical system by using an aspherical surface having a random optical power.

84. (Previously Presented) A method according to claim 83, wherein said step of correcting the non-random optical characteristic comprises the step of adjusting said at least

one optical element, which includes a surface having different powers in orthogonal directions.

85. (Previously Presented) A method according to claim 83, wherein said aspherical surface is processed locally.

86. (Previously Presented) A method of manufacturing a projection optical system for forming an image of a first object onto a second object, comprising the steps of:

providing a first optical element;

providing a second optical element;

adjusting said first optical element within said projection optical system so as to correct a first optical characteristics remaining in said projection optical system;

forming an aspherical surface with respect to said second optical element so as to correct a second optical characteristics remaining in said projection optical system; and

disposing said second optical element in an optical path between said first object and said second object.

87. (Previously Presented) The method according to claim 86, wherein in said second optical element providing step, said second optical element comprises an optical surface having any one of a spherical shape, a planer shape and a toric surface and in said forming step, said second optical element is formed with an aspherical surface.

88. (Previously Presented) The method according to claim 87, wherein in said adjusting step, said adjustment is performed by rotating said first optical element.

89. (Previously Presented) The method according to claim 88, wherein in said adjusting step, said adjustment is performed by moving said first optical element in an optical axis direction.

90. (Previously Presented) The method according to claim 87, wherein said second optical characteristic comprises a random component.

91. (Previously Presented) The method according to claim 86, wherein said first optical characteristic comprises a rotationally asymmetrical aberration.

92. (Previously Presented) A projection optical system formed by a method according to claim 87.

93. (Previously Presented) A projection exposure apparatus comprising:

an illumination optical system disposed in an optical path between a light source and a reticle so as to illuminate the reticle on which a predetermined pattern is formed; and

a projection optical system according to claim 92, to project an image of the reticle illuminated by said illumination optical system onto a substrate.

94. (Previously Presented) A projection optical system for forming an image of a first object onto a second object, comprising:

a first optical correcting unit including at least one surface arranged in an optical path between said first object and said second object, which corrects a first optical characteristic remaining in said projection optical system; and

a second optical correcting unit including at least one surface arranged in an optical path between said first object and said second object, which corrects a second optical characteristic remaining in said projection optical system,

wherein said first correcting unit is arranged at a position different from a position of said second optical correcting unit,

said first optical correcting unit corrects said first optical characteristic independently of said second optical characteristic, and

said second optical correcting unit corrects said second optical characteristic independently of said first optical characteristic.

95. (Previously Presented) A projection exposure apparatus comprising:

an illumination optical system disposed in an optical path between a light source and a reticle so as to illuminate the reticle on which a predetermined pattern is formed; and

a projection optical system according to claim 94 to project an image of the reticle illuminated by said illumination optical system onto a substrate.

96 (Previously Presented) A method of manufacturing a projection optical system for forming an image of a pattern on a reticle disposed at a first plane onto a substrate disposed at a second plane, comprising the steps of:

determining a first rotate angle of a first optical element about an optical axis of the projection optical system;

determining a second rotate angle of a second optical element about the optical axis of the projection optical system; and

determining a third rotate angle of a third optical element about the optical axis of the projection optical system,

wherein the first, second and third optical elements each having the first, second, and third rotate angles are arranged in an optical path between the first plane and the second plane.

97. (Previously Presented) A method according to claim 96, wherein the first, second, and third optical elements each have different powers in orthogonal directions.

98. (Previously Presented) A method according to claim 96, wherein the first, second, and third optical elements each have a predetermined refractive index distribution.

99. (Previously Presented) A method according to claim 96, further comprising a step of preparing an optical parameter of the projection optical system,

wherein the first, second, and third rotate angles of the first, second and third optical elements are determined to account for the optical parameter of the projection optical system.

100. (Previously Presented) A projection optical system manufactured by the method according to claim 96.

101. (Previously Presented) A method of manufacturing an exposure apparatus for forming an image of a pattern on a reticle disposed at a first plane onto a substrate disposed at a second plane, comprising the steps of:

preparing a light source;

preparing an illumination optical system for illuminating the pattern on the reticle based on a light from the light source;

preparing a projection optical system for forming the image of the pattern on the reticle onto the substrate;

determining a first rotate angle of a first optical element which is arranged in an optical path between the light source and the second plane;

determining a second rotate angle of a second optical element which is arranged in the optical path between the light source and the second plane; and

determining a third rotate angle of a third optical element which is arranged in the optical path between the light source and the second plane.

102. (Previously Presented) A method according to claim 101, wherein the first, second, and third optical elements are arranged in an optical path between the first plane and the second

plane.

103. (Previously Presented) A method according to claim 101, wherein the first, second, and third optical elements each have different powers in orthogonal directions.

104. (Previously Presented) A method according to claim 101, wherein the first, second, and third optical elements each have a predetermined refractive index distribution.

105. (Previously Presented) A method according to claim 101, further comprising a step of preparing an optical parameter of the projection optical system,

wherein the first, second, and third rotate angles of the first, second, and third optical elements are determined to account for the optical parameter of the projection optical system.

106. (Previously Presented) An exposure apparatus manufactured by the method according to claim 101.

107. (Previously Presented) A projection exposure apparatus according to claim 48, wherein the at least one optical surfaces has different powers in orthogonal directions.

108. (Previously Presented) A projection exposure apparatus according to claim 46, wherein the aspherical surface is processed locally.

109. (Previously Presented) A projection exposure apparatus according to claim 108, wherein the first optical characteristic is a random optical characteristic remaining in the projection optical system.

110. (Previously Presented) A method according to claim 57, wherein the forming step includes the step of locally processing the optical element within the projection optical system.

111. (Previously Presented) A method according to claim 62, wherein the aspherical surface is formed by locally processing an optical element within the projection optical system.

112. (Previously Presented) A method according to claim 69, wherein the magnification includes a magnification error of the projection optical system.

113. (Previously Presented) A projection system according to claim 72, wherein the magnification includes a magnification error of the projection optical system.

114. (Currently Amended) A projection exposure apparatus which transfers an image of a first object onto a second object based on light from a light source, comprising:

an illumination optical system which is disposed in an optical path between the light source and the first object and which illuminates the first object;

a projection optical system which is disposed in an optical path between the first object and the second object and which projects an image of the first object onto the second object;

a first optical unit which is disposed in the optical path between ~~the light source and~~ the first object and the second object and which has different powers in orthogonal directions; and

a second optical unit which is disposed in the optical path between the first object and the second object and which has different powers in orthogonal directions,

wherein a focal length of the first optical unit and a focal length of the second optical unit are changeable without moving or rotating the first and second optical units.

115. (Previously Presented) A projection exposure apparatus according to claim 114, wherein the projection optical system has the first and second optical units.

116. (Previously Presented) A projection exposure method for transferring an image of a first object onto a second object, comprising the steps of:

illuminating the first object;

projecting an image of the first object onto the second object;

preparing a first optical unit having different powers in orthogonal directions in an optical path between the first object and the second object;

preparing a second optical unit having different powers in orthogonal directions in an optical path between the first object and the second object; and

changing a focal length of the first optical unit and a focal length of the second optical unit without moving or rotating the first and second optical units.

117. (Previously Presented) A projection exposure apparatus which transfers an image of a first object onto a second object based on light from a light source, comprising:

an illumination optical system which is disposed in an optical path between the light source and the first object and which illuminates the first object;

a projection optical system which is disposed in an optical path between the first object and the second object and which projects an image of the first object onto the second object;

an optical unit which is disposed in the optical path between the first object and the second object and which has rotationally asymmetric power with respect to an optical axis of the projection optical system; and

a pressure control unit which controls a pressure between constituent lenses of the projection optical system,

wherein the optical unit and the pressure control unit correct an optical characteristic including a rotational asymmetrical characteristic remaining in the projection optical system with respect to the optical axis of the projection optical system.

118. (Previously Presented) A projection exposure apparatus according to claim 117, wherein the optical unit is at least one of rotatable about the optical axis of the projection optical system and movable along the optical axis of the projection optical system.

119. (Previously Presented) A projection exposure apparatus which transfers an image of a first object onto a second object based on light from a light source, comprising:

an illumination optical system which is disposed in an optical path between the light source and the first object and which illuminates the first object;

a projection optical system which is disposed in an optical path between the first object and the second object and which projects an image of the first object onto the second object;

a rotational asymmetric power changeable unit which is disposed in the optical path between the first object and the second object and which changes a rotational asymmetric power with respect to an optical axis of the projection optical system; and

a pressure control unit which controls a pressure between constituent lenses of the projection optical system,

wherein the rotational asymmetric power changeable unit and the pressure control unit correct an optical characteristic including a rotational asymmetrical characteristic remaining in the projection optical system with respect to the optical axis of the projection optical system.

120. (Previously Presented) A projection exposure apparatus according to claim 119, wherein the rotational asymmetric power changeable unit includes an optical unit with a rotational asymmetric power with respect to an optical axis of the projection optical system.

121. (Previously Presented) A projection exposure apparatus according to claim 120, wherein the optical unit has a changeable focal length.

122. (Previously Presented) A projection exposure apparatus according to claim 121, wherein the optical unit includes at least one toric optical member.

123. (Previously Presented) A projection exposure apparatus according to claim 122, wherein the pressure control unit corrects a magnification of the projection optical system.

124. (Previously Presented) A projection exposure method for transferring an image of a first object onto a second object, comprising the steps of:

illuminating the first object;

projecting an image of the first object onto the second object;

arranging an optical unit, which has rotationally asymmetric power with respect to an optical axis of the projection optical system, in an optical path between the first object and the second object; and

controlling a pressure between constituent lenses of the projection optical system,

whereby an optical characteristic including a rotational asymmetrical characteristic remaining in the projection optical system with respect to the optical axis of the projection optical system is corrected.

125. (Previously Presented) A method according to claim 124, further comprising at least one of a step of rotating the optical unit about the optical axis of the projection optical system and a step of moving the optical unit along the optical axis of the projection optical system.

126. (Previously Presented) A projection exposure method for transferring an image of a first object onto a second object, comprising the steps of:

illuminating the first object;

projecting an image of the first object onto the second object;

adjusting a rotational asymmetric power with respect to a projection optical system; and

controlling a pressure between constituent lenses of the projection optical system,

whereby an optical characteristic including a rotational asymmetrical characteristic remaining in the projection optical system with respect to the optical axis of the projection optical system is corrected.

127. (Previously Presented) A method according to claim 126, wherein the adjusting step comprises a step of adjusting the rotational asymmetrical power with respect to a projection optical system using an optical unit having a rotational asymmetrical power with respect to the projection optical system.

128. (Previously Presented) A method according to claim 127, wherein the optical unit has a changeable focal length.

129. (Previously Presented) A method according to claim 128, wherein the optical unit has a toric optical member.

130. (Previously Presented) A method according to claim 129, wherein the controlling step comprises a step of correcting a magnification of the projection optical system with controlling the pressure between constituent lenses of the projection optical system.

131. (Previously Presented) A method according to claim 126, further comprising a step of measuring the rotational asymmetrical characteristic with respect to the optical axis of the projection optical system,

wherein the optical characteristic including a rotational asymmetrical characteristic is corrected based on a result of a measured rotational asymmetrical characteristic.

132. (Previously Presented) A method according to claim 126, wherein the projecting step is executed after correcting the optical characteristic including the rotational asymmetrical characteristic remaining in the projection optical system.

133. (New) A method according to claim 96, further comprising:

a step of correcting at least one of distortion and astigmatism of the projection optical system.

134. (New) A method according to claim 101, further comprising:

a step of correcting at least one of distortion and astigmatism of the projection optical system.